

on Gunsmoke Rd (34.1670151°N, 103.9969887°W, NAD 83; elev. 1295 m). 11 May 2010. M. T. Hill. Verified by J. T. Giermakowski. Museum of Southwestern Biology (MSB 78054). New county record (Degenhardt et al. 1996. *Amphibians and Reptiles of New Mexico*. University of New Mexico Press, Albuquerque. 431 pp.). The closest known specimen of *S. catenatus* (MSB 74669) is from Chaves Co., 31.74 km S of the new locality.

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**TANTILLITA LINTONI** (*Linton's Dwarf Short-tailed Snake, Cu-lebrita Enana de Linton*). HONDURAS: ISLAS DE LA BAHÍA: Isla de Utila, Utila, Iguana Station (16.10056°N, 86.885833°W; WGS84), elev. 40 m. 24 February 2010. Andrea Martinez. Verified by James R. McCranie. UNAH 5571. First record for Isla de Utila, Islas de la Bahía (McCranie et al. 2006. *Amphibians and Reptiles of the Bay Islands and Cayos Cochinos, Honduras*. Bibliomania, Salt Lake City, Utah. xii + 210 pp.). The snake was found under a rock.

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**THAMNOPHIS MELANOGASTER** (*Mexican Black-bellied Gartersnake*). MÉXICO: MORELOS: MUNICIPALITY OF HUITZILAC: Parque Nacional Lagunas de Zempoala (19.051139°N, 99.31325°W; WGS84), 2832 m elev. 24 September 2010. Adriana J. González Hernández. Verified by Víctor Hugo Reynoso. Colección Nacional de Anfibios y Reptiles, Instituto de Biología, UNAM (CNAR-IBH 24541). First record from Morelos, extending its known range 30

km S of Tlalpan, Distrito Federal, and an upward elevation extension of 287 m (Ramírez-Bautista et al. 2009. *Herpetofauna del Valle de México*. UAEH-CONABIO, México, D.F. xxiv + 213 pp.; Rossman et al. 1996. *The Garter Snakes: Evolution and Ecology*. Univ. Oklahoma Press, Norman, Oklahoma. xx + 332 pp.). The snake was basking on tree branches adjacent to a lagoon.

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**THAMNOPHIS SIRTALIS** (*Common Gartersnake*). USA: MICHIGAN: CHARLEVOIX Co.: South end of Hog Island, Eastern Lake Michigan Archipelago (45.76667°N, 85.383333°W; WGS84). 24 May 2008. James C. Gillingham. Verified by Fred Janzen. Iowa State University Research Collection (ISUA 201102; digital image). New record for Hog Island (Bowen and Gillingham 2004. *Michigan Acad.* 35:213–223).

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## Noteworthy Records of Amphibians from Western Panama

In view of its relatively small size, Panama supports one of the most diverse amphibian faunas in Central America (Jaramillo et al. 2010; Ibáñez et al. 2001; Myers and Duellman 1982). The

global amphibian crisis has led to serious population declines throughout the world, with almost all amphibian families being affected (Stuart 2004). This has been especially the case in Panama (Jaramillo et al. 2010). The major threat to amphibians is habitat loss as measured by high deforestation rates in all of Central America and other hotspots of biodiversity (Wilson and Johnson 2010; Wilson and Townsend 2010; Brooks et al. 2002). Another cause for concern is the chytrid fungal pathogen, *Batrachochytrium dendrobatidis*, which has caused mass mortalities and amphibian diversity loss in most highland amphibian populations in western Panama (Brem and Lips 2008; Crawford et al. 2010a; Lips 1999; Lips et al. 2006). However, recent amphibian species descriptions (e.g., Bolaños and Wake 2009; Crawford et al. 2010b; Köhler et al. 2007; Mendelson et al. 2008; Mendelson and Mulcahy 2010; Ryan et al. 2010; Wake et al. 2005, 2007) and continual reports on range extensions (e.g., Köhler et al. 2008) demonstrate that the amphibian inventory for Panama is still far from complete. A checklist and bibliography on the Panamanian

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herpetofauna prepared by Auth (1994) listed 170 species of amphibians. Later, Young et al. (1999) published a list that contained 171 species of amphibians and additional information on provincial records and conservation status. Ibañez et al. (2001) updated the list to 176 species, and most recently Jaramillo et al. (2010) registered 199 species from Panama, including two introduced forms.

During field work from May through August 2008, we visited different sites in the Cordillera Central of western Panama in the provinces of Chiriquí, Bocas del Toro, Veraguas and the Comarca Ngöbe-Buglé, an indigenous, autonomous territory that was established in 1997 (Fig. 1). During that period, we collected 233 specimens of amphibians representing 51 species. The purpose of this paper is to report noteworthy findings among the collected material. For frogs, we present a first country record and four distributional range extensions, all of which represent first province records. We also provide new morphological and ecological information on two rarely observed salamanders.

All vouchers were verified by Javier Sunyer. Locality and elevational data were recorded using a GPS receiver with an integrated barometric altimeter, Garmin Etrex Summit; map datum used was WGS84. The map (Fig. 1) was created using ArcMap 10 and the shapefiles provided by the Smithsonian map server at <http://mapserver.stri.si.edu/>. All voucher specimens are deposited in the collection of Senckenberg Forschungsinstitut und Naturmuseum (SMF). Common names were generated consulting the online database of Frost (2010), except for *Oedipina fortuneensis*, which was named by translating the scientific name.

## ANURA — FROGS

### Hylidae

**AGALYCHNIS ANNAE (Blue-Sided Leaf Frog)** (Fig. 2). COMARCA NGÖBE-BUGLÉ: ca. 6.3 km W of La Nevera and 10.5 km NNW of Hato Chamí (8.5353°N, 81.8081°W), 1600 m elev. 10 May 2008. Andreas Hertz and Gunther Köhler. SMF 89791. First record for Panama, extending the known distribution ca. 230 km SE from the nearest collection site at Moravia de Chirripó, Costa Rica (Duellman 2001, who also assumed it would be found on the Caribbean slopes of western Panama). *Agalychnis annae* has suffered serious population declines and has disappeared from most of its known geographic range; it is now listed as

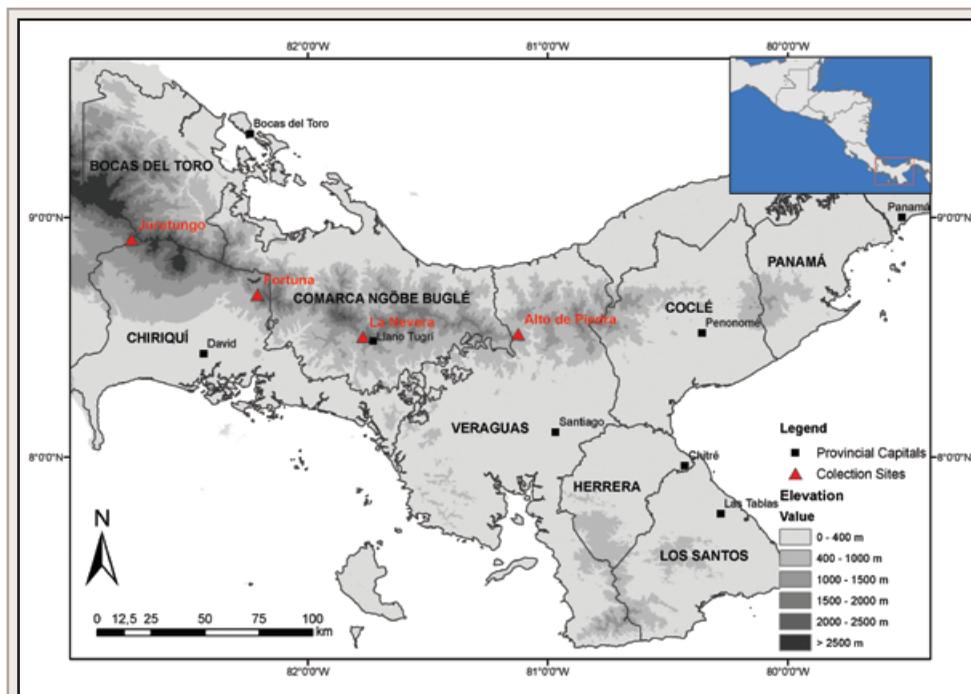


FIG. 1 Map of collection localities in western Panama denoted by red triangles, from west to east: Jurutungo, Chiriquí; Reserva Forestal La Fortuna, Chiriquí; La Nevera, Comarca Ngöbe-Buglé; Alto de Piedra, Veraguas.

endangered by the IUCN (Pounds et al. 2008). The only population in Costa Rica that seems to persist is found around San José (Pounds et al. 2008), thus this new record from Panama should play an important role in shaping future conservation actions.

**HYLOSCIRTUS COLYMBA (La Loma Treefrog)** (Fig. 3). VERAGUAS: Alto de Piedra, ca. 4 km W of Santa Fé (8.5129°N, 81.1220°W), 880 m elev. 11 July 2008. Leonard Stadler and Nadim Hamad. SMF 89794. First record for Veraguas that fills the gap between the species' nearest collection sites; Reserva Forestal Fortuna, Chiriquí; 120 km W (Lips 1999) and El Copé, Coclé; ca. 45 km E (Crawford et al. 2010). However, at both of those neighboring sites it has become extremely rare after serious declines and is listed as critically endangered by IUCN (Solis et al. 2008). Martínez and Rodríguez (1992) and Martínez et al. (1994) were the first to present inventories of the herpetofauna of the Santa Fé, Veraguas region, and mentioned finding various unidentified hylid frogs. We cannot rule out that they discovered *H. colymba* around Santa Fé, but that has become an irresolvable point because the voucher specimens were lost before they could be identified (V. Martínez, pers. com.).

### Craugastoridae

**CRAUGASTOR MONNICHORUM (Dunn's Robber Frog)** (Fig. 4). COMARCA NGÖBE-BUGLÉ: La Nevera, Caribbean slopes, ca. 6 km NNW of Hato Chamí (8.4953°N, 81.7672°W), 1800 m elev. 14 August 2008. Andreas Hertz and Sebastian Lotzkat. SMF 89801.

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FIG. 2. *Agalychnis annae*, La Nevera, Comarca Ngöbe-Buglé.

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FIG. 3. *Hyloscirtus colymba*, Alto de Piedra, Veraguas.

PHOTO BY SL

FIG. 4. *Craugastor monnichorum*, La Nevera, Comarca Ngöbe-Buglé.

First record for Comarca Ngöbe-Buglé, extending the known distribution in Panama, ca. 60 km E of the formerly easternmost collecting site at Quebrada Frank, Reserva Forestal Fortuna (Tejera and Dupuy 2003). The large female was situated ca. 30 cm above ground on a mossy liana situated in elfin woodland on the crest of a mountain ridge.



PHOTO BY AH

FIG. 5. *Hyalinobatrachium talamancae*, La Nevera, Comarca Ngöbe-Buglé.

### Centrolenidae

**HYALINOBATRACHIUM TALAMANCAE (Talamanca Glass Frog)** (Fig. 5). COMARCA NGÖBE-BUGLÉ: La Nevera, Caribbean slope, ca. 6 km NNW of Hato Chamí, (8.4987°N, 81.1195°W), 1550–1600 m elev. 16 August 2008. Andreas Hertz and Sebastian Lotzkat. SMF 89798–89800. First record for Comarca Ngöbe-Buglé that fills the gap between the species' nearest collection sites at Reserva Forestal Fortuna, Chiriquí; ca. 53 km W (Kubicki et al. 2008) and Parque Nacional Altos de Campana, Panama province; ca. 195 km SE (Ibañez et al. 1996). Furthermore, this record exceeds the known elevational limit known for this species by about 484 m (Taylor 1952).

*Hyalinobatrachium talamancae* is often confused with *H. vireovittatum*, as both show a characteristic green mid-dorsal line and are similar in respect to their morphology, ecology, and mating calls (Kubicki 2007). However, in the latter species the mid-dorsal green line is bordered by two clearly distinguishable yellow stripes that are lacking on specimens from La Nevera. Kubicki (2007) reviewed specimens referred to as *H. vireovittatum* in the collection of the Círculo Herpetológico de Panama in 2004 and considered all to be *H. talamancae*. Moreover, in 2005 he found a population in El Valle, Coclé, that apparently is the only record of *H. vireovittatum* currently known from Panama. Nevertheless, the possibility exists that *H. vireovittatum* is a synonym of *H. talamancae* (Kubicki 2007).

### Strabomantidae

**PRISTIMANTIS MORO (La Honduras Robber Frog)** (Fig. 6). VERAGUAS: Alto de Piedra, ca. 4 km W of Santa Fé (8.5142°N, 81.1195°W), 1060 m elev. 1 August 2008. Leonard Stadler and Nadim Hamad. SMF 89796. First record for Veraguas that fills the gap between the two nearest published localities, about 360 km NW to La Honduras, San José, Costa Rica and ca. 110 km SE to Valle de Antón, Coclé, Panama (Crawford et al. 2010). This

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FIG. 6. *Pristimantis moro*, amplexant pair, Veraguas.

PHOTO BY AH

FIG. 7. *Bolitoglossa sombra*, Jurutungo, Chiriquí.

PHOTO BY SL

FIG. 8. *Oedipina fortunensis* with automized tail, La Fortuna, Chiriquí.

rarely observed species uses epiphytic bromeliads during daylight hours (Savage 1965, 2002). We found an amplexing pair at night on a leaf about 1.2 m above the ground in premontane wet forest. Unfortunately, the female escaped the next day, but left nine eggs inside the collection bag.

## CAUDATA — SALAMANDERS

## Plethodontidae

***BOLITOGLOSSA SOMBRA* (Shadowy Web-footed Salamander)** (Fig. 7). CHIRIQUÍ: Jurutungo, on the Pacific slopes of Cerro Pando, near the Costa Rican border (8.9075°N, 82.7336°W), 1850–1965 m elev. 12–13 July 2008. Andreas Hertz and Sebastian Lotzkat. SMF 89792–89793. The locality is within the known range of this recently described species (Hanken et al. 2005), but because of its rarity in collections, we here add information on morphological characteristics and ecology.

On two rainy nights, we found several of these large black salamanders, but only collected one large male and one large female. Some were found in pristine lower montane wet forest while they were walking on tree trunks; a single juvenile was inside a rotten log on the forest floor; and others were located inside a cow paddock while positioned on top of rocks. When disturbed, the salamanders were able to move astonishingly fast. Most morphometric data and tooth counts are within the documented range of variation of this species (Hanken et al. 2005). However, the two secured specimens represent the largest individuals so far reported for this species; SMF 89792, a male, has a standard length of 70 mm and SMF 89793, a female, has a standard length of 84.5 mm. The largest individuals reported before were 61.5 mm (males) and 82.7 mm (females), respectively.

***OEDIPINA FORTUNENSIS* (Fortuna Worm Salamander)** (Fig. 8). CHIRIQUÍ: Reserva Forestal Fortuna, near Río Hornito (8.677°N, 82.209°W), 1300 m elev. 18 June 2008. Andreas Hertz and Sebastian Lotzkat. SMF 89795. Our record is only the second known individual of this species reported since its description by Köhler et al. (2007), and the site is located near the type locality. The male specimen was found near the riverbank of the Río Hornito on a trail through a former citrus plantation. The salamander was on the ground and had shed its tail, probably due to our disruptive pursuit, but the extremity was retrieved for inclusion with morphological comparison to the holotype. Because of the lack of comparative statistics with the male holotype, we herein present morphometric data and tooth counts from the additional specimen; holotype values are in parentheses and abbreviations for standard measurements are those of Köhler et al. (2007): SVL 32.5 mm (33.5 mm); TL 39.0 mm, incomplete (46.5 mm); SVL/TL 0.80 (0.72); HL 5.4 mm (6.5 mm); SVL/HL 6.0 (5.2); HW 4.1 mm (3.9 mm); SVL/HW 7.9 (8.6); HHL 5.6 mm (4.3 mm); SVL/HHL 5.8 (7.8); HAW 0.9 mm (1.2 mm); SVL/HAW 36.1 (27.9); HFW 1.2 mm (1.7 mm); SVL/HFW 27.1 (19.7). A single large premaxillary tooth is distinctly offset, almost piercing the lip (same in holotype); maxillary teeth 16 (right) - 18 (left) (13-14); vomerine teeth 7 (right) - 6 (left) (7-7). The above values reasonably favor the contention that SMF 89795 is conspecific with the holotype of *O. fortunensis*.

Based on information presented by Brame (1968), the high total number of maxillary teeth (27–34) distinguishes *O. fortunensis* from other members of the subgenus *Oedopinola* in lower Central America, except *O. complex* (16–40 in males). Generally

however, adult males of *O. complex* are larger (SVL: 36.6–39 mm versus 32.5–33.5 mm in *O. fortunensis*), have a slightly broader head (SVL/HW: 8.5–9.6 versus 7.9–8.6), and more vomerine teeth (17–28 versus 13–14). Nevertheless, since both species overlap in some morphometric characters, tooth counts, geographical range, and that *O. fortunensis* presently contains only two specimens for comparison, it cannot be ruled out that *O. fortunensis* is a junior synonym of *O. complex*.

Coloration in life of SMF 89795, interpreted from Smithe (1975, 1981) (color code numbers in parentheses), was recorded as follows: Dorsal ground color of body, head, and tail Russet (34) with Warm Buff (118) mottling; dorsal surface of head and upper legs with Buff (124) blotches; lower legs and lateral surfaces of body and head Fuscous (21), merging into Sepia (119) ventrally; venter with dirty white mottling.

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## Additional Distributional Records of Amphibians and Reptiles in Georgia, USA

Since the publication of *Amphibians and Reptiles of Georgia* (Jensen et al. 2008), numerous records of amphibians and reptiles from counties not represented in the book's species-distribution maps have been submitted to the Georgia Department of Natural Resources. These new records, as well as recent records obtained by the authors, are provided herein. Unless otherwise indicated, geo-coordinates are based on datum NAD 83. Vouchers indicated as "AHAP-D" are digital photos housed in the Auburn

University Herpetological collections. Identifications were verified by Lance D. McBrayer unless indicated otherwise.

### CAUDATA — SALAMANDERS

**AMBYSTOMA MACULATUM (Spotted Salamander).** APPLING Co.: 4.5 km NW of Davis on Moody Forest Natural Area Preserve (31.930833°N, 82.283333°W). 14 March 2009. D. Stevenson and E.

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